

1 wastes at Hanford. We anticipate that the Waste Isolation Pilot Plant will have its remote-handled waste
2 acceptance criteria and infrastructure in place to begin receiving such waste in approximately the 2005
3 timeframe.

4 5 **Solid Radioactive Waste Transportation and Emergency Preparedness**

6
7 About 300 million hazardous material^(a) shipments (DOT 1998) occur in the United States every year.
8 About 3 million (1 percent) of these involve shipments of radioactive material.^(b) Currently, less than one
9 percent of these 3 million radioactive material shipments are DOE shipments (NEI 2003).

10
11 The annual number of DOE radioactive material shipments is expected to increase over the next
12 several years. However, the number of DOE radioactive material shipments will continue to be small in
13 comparison to the total number of hazardous material shipments.

14
15 Solid radioactive waste is currently transported to and from Hanford by truck. We are considering
16 using rail as an alternative method of transporting waste. Shipment of waste by rail may require
17 constructing a spur or developing an intermodal transfer capability. If rail shipment is proposed it will
18 be evaluated under future National Environmental Policy Act reviews.

19
20 While the U.S. Department of Transportation regulates shipment of hazardous materials (including
21 radioactive materials), the Nuclear Regulatory Commission and DOE have additional regulations that
22 address transportation of radioactive materials. In addition, local, State, tribal, and federal governments
23 and carriers all have responsibility for preparing for and responding to transportation emergencies. Local
24 or tribal personnel typically are the first responders and incident commanders for offsite transportation
25 accidents. Although many local jurisdictions have special hazardous material response units, most seek
26 State or federal technical assistance during radiological incidents.

27 28 **S.6 Description of Alternatives**

29
30 There are both action alternatives and a No Action Alternative in this HSW EIS. Each action alter-
31 native is defined by a general waste management activity (storage, treatment, or disposal); a specific
32 waste stream; and a specific design, location, or option for the proposed action. For example, an alter-
33 native for treatment of MLLW would be to use offsite contracts for thermal treatment of the contact-
34 handled mixed waste stream; or an alternative for disposal of ILAW might be to use a combined-use
35 modular facility located in the 200 East Area. We considered a number of other alternatives, but did not
36 evaluate them in detail because DOE determined that they are not reasonable alternatives.

37
38 Under all alternatives evaluated in this HSW EIS, some waste storage operations (as opposed to waste
39 disposal operations discussed later) would continue at the Central Waste Complex and within the Low
40

(a) For the purposes of this transportation discussion, hazardous materials include items that present chemical hazards, radioactive hazards, and physical hazards (e.g., compressed gases).

(b) Radioactive materials include radioactive waste.

Level Burial Grounds. The action alternatives do not require additional storage beyond the current Central Waste Complex capacity. Only the No Action Alternative would require an expansion of the Central Waste Complex.

We would need additional capabilities to treat MLLW because some types, including remote-handled MLLW and non-standard items, cannot be accepted by commercial facilities. In addition, we would need a similar capability to process and certify remote-handled TRU waste and non-standard items because the Waste Receiving and Processing Facility does not have the capability to do so. The treatment action alternatives are summarized in Figure S.13.

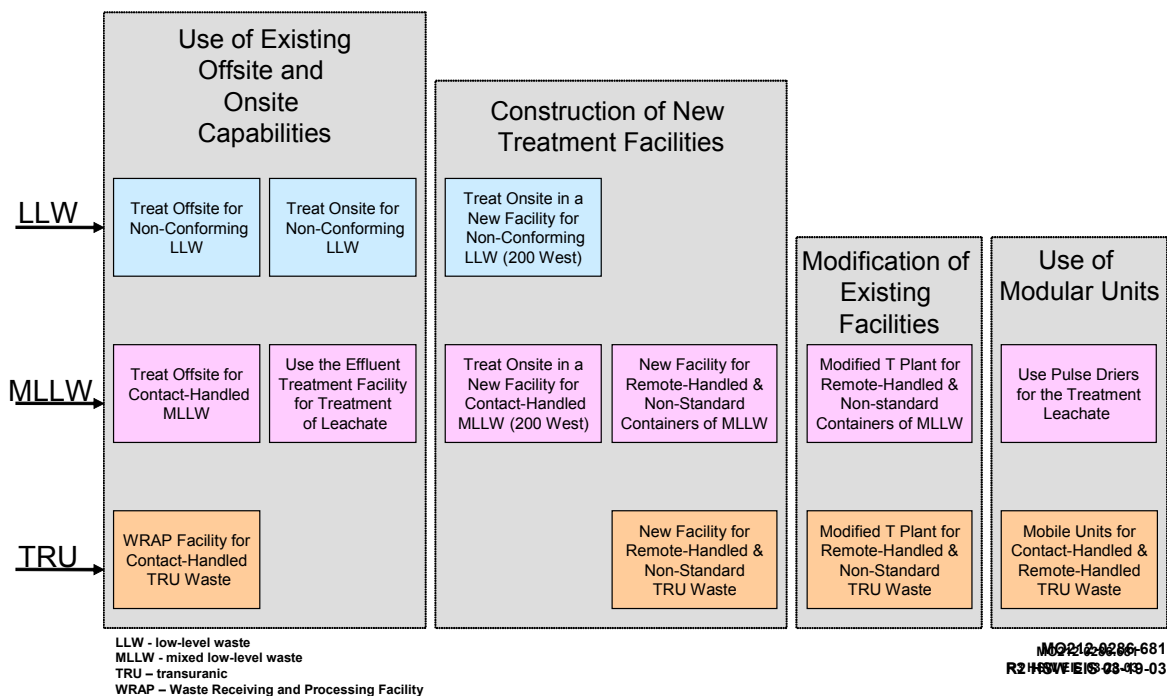


Figure S.13. Solid Waste Treatment Action Alternatives

Thus, we developed alternatives evaluating new or modified facilities in this HSW EIS to provide needed capabilities for waste treatment and processing, by asking the following specific questions:

- To treat some MLLW and TRU waste, should we modify facilities within the T Plant Complex or construct a new treatment facility?
- To treat MLLW, should we extend existing commercial treatment contracts or establish new contracts or do neither?
- To process and ship out more TRU waste, should we use mobile TRU processing facilities, also called Accelerated Process Lines (which are similar to the Waste Receiving and Processing Facility)?

- To replace the Effluent Treatment Facility capability after it ceases operating, should we use driers to process leachate from the MLLW trenches?

Facilities would use various treatment technologies. We identify the reasonable treatment technologies, their range of operations, and their alternative locations.

In some of the HSW EIS action alternatives, we consider constructing new disposal capacity for LLW and MLLW as well as using existing trench capacity. We evaluate trenches similar to those used now for disposal of LLW and MLLW at Hanford, new enhanced (deeper and wider), and expandable disposal facilities. We evaluate separate designs for each waste type and for melters and ILAW from the tank waste treatment plant. We also provide some alternatives in which we would use a lined modular disposal facility for some or all of the waste streams. In most alternatives, we would ultimately close the disposal facilities by placing over the top of the facility a cap (cover or barrier) consisting of soil, sand, gravel, and asphalt to reduce water infiltration and the potential for human, animal, or plant intrusion. Figure S.14 summarizes the various alternatives considered for the disposal of solid radioactive waste in the future.

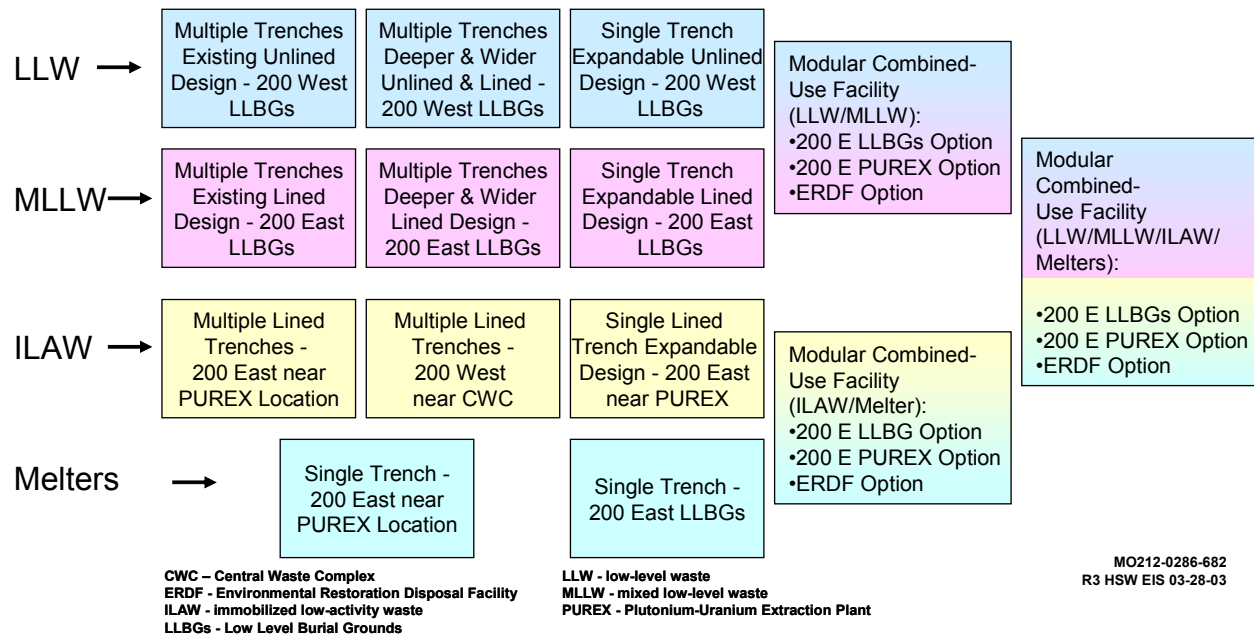


Figure S.14. Solid Waste Disposal Action Alternatives

Under most scenarios, the disposal of ILAW and melters would require new, specially designed MLLW capacity. The melters evaluated in this HSW EIS are expected to be disposed of similar to mixed waste, but because of their large size (15 to 25 feet in length, height, and width, and weighing up to 600 tons), they might be handled differently from other mixed wastes. Because the *Tank Waste Remediation System EIS* (DOE and Ecology 1996) previously evaluated the generation of these wastes, the HSW EIS is evaluating only the disposal.

Grouping of Alternatives

In developing the alternatives for this HSW EIS we quickly recognized that there are a large number of combinations of the various waste streams, their potential waste volumes, and individual options for their storage, treatment, and disposal. So, to facilitate the analysis and presentation of impacts, we have constructed six primary alternative groups. Within these alternative groups we specified alternatives for the treatment, storage, and disposal for the different waste types and analyzed for a range of potential waste volumes. The groups have been simply identified as No Action (N), A, B, C, D, and E. For Alternative Groups D and E, we considered different potential locations for the disposal facility(s) within the 200 East and 200 West Areas. With the exception of the No Action Alternative, each alternative is consistent with WM PEIS Records of Decision. Alternative Group A, Alternative Group B, and the No Action Alternative are fundamentally the same as Alternative 1, Alternative 2, and the No Action Alternative, described in the first draft of this HSW EIS. Alternative Groups C, D, and E (and their options) are new and are supported by new analysis. Figure S.15 illustrates our approach for grouping the alternatives into these alternative groups.

No Action Alternative: The No Action Alternative consists of continuing current solid waste management practices, including continued storage of radioactive wastes that cannot be processed for disposal. As part of the No Action Alternative, we would continue to implement previous Records of Decision and other NEPA decisions for existing facilities and operations and continue ongoing activities. This is the more traditional “no action” alternative, where the EIS assumes there is no change from existing operations. For example, Hanford would continue to dispose of LLW within the Low Level Burial Grounds even though doing so is certainly considered an ongoing action. However, to respond to concerns from commenters on the first draft of this HSW EIS, we also describe qualitatively a “Stop Action” scenario.

Alternative Group A – Disposal by Waste Type in Larger Disposal Facilities – Onsite and Offsite Treatment: New disposal facilities would be deeper and wider than those currently in use and would be lined with leachate collection systems. Different waste types would not be disposed of together. New LLW capacity would be located in the 200 West Area and new MLLW, ILAW, and melter facilities would be located in the 200 East Area. T Plant would be modified to provide treatment capabilities for remote-handled TRU waste, remote-handled MLLW, and waste in non-standard containers. Treatment of contact-handled MLLW would be provided at offsite facilities.

Alternative Group B – Disposal by Waste Type in Existing Design Disposal Trenches – Onsite Treatment: Disposal trenches would be of the same design as those currently in use. Different waste types would not be disposed of together. New LLW and ILAW trenches would be located in the 200 West Area and new MLLW and melter trenches would be located in the 200 East Area. A new facility would be built to provide treatment capabilities for remote-handled TRU waste, remote-handled MLLW, contact-handled TRU waste, and waste in non-standard containers.

Alternative Group C – Disposal by Waste Type in Expandable Design Facility – Onsite and Offsite Treatment: A single, expandable disposal facility (similar to the Environmental Restoration Disposal Facility) would be used for each waste type. Different waste types would not be disposed of

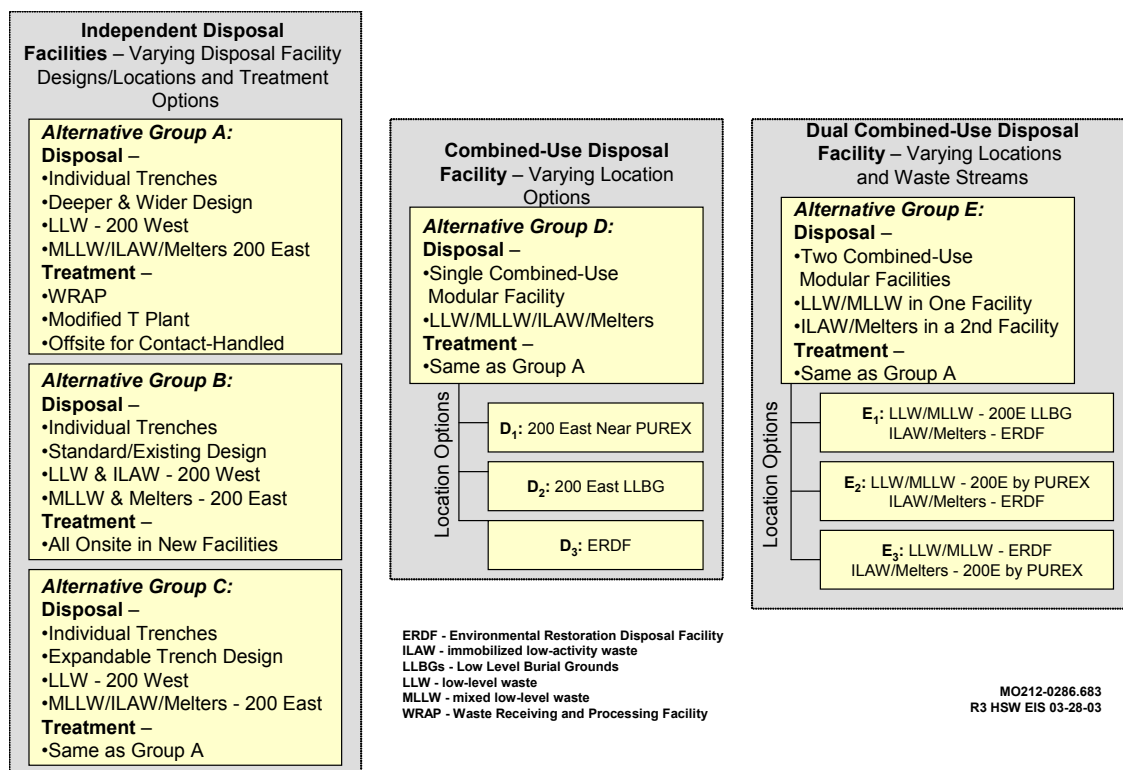


Figure S.15. Development of Alternative Action Groups

together. New LLW facilities would be located in the 200 West Area and new MLLW, ILAW, and melter facilities would be located in the 200 East Area. Treatment alternatives would be the same as those described in Alternative Group A.

Alternative Group D – Single Combined-Use Disposal Facility – Onsite and Offsite Treatment: LLW, MLLW, ILAW, and melters would be disposed of in a single facility. Disposal would occur either near the Plutonium-Uranium Extraction Plant (D₁), in the 200 East Area Low Level Burial Grounds (D₂), or at the Environmental Restoration Disposal Facility (D₃). Treatment alternatives would be the same as those described in Alternative Group A.

Alternative Group E – Dual Combined-Use Disposal Facilities – Onsite and Offsite Treatment: LLW and MLLW would be disposed of in a single facility; ILAW and melters would be disposed of in another single facility. Disposal would occur in some combination of locations as shown in Table S.1. Treatment alternatives would be the same as those described in Alternative Group A.

S.7 Comparison of Alternatives

We have prepared the following sections to summarize the results of the environmental analyses prepared in this revised draft HSW EIS. We have included a high-level summary of the environmental consequences associated with the various alternative groups. We also discuss the results of our cumulative impacts analysis, potential mitigation measures, and our long-term stewardship plans.